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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,233	12/21/2001	Akito Sato	MES1P060	3478

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EXAMINER

NGUYEN, LAMSON D

ART UNIT PAPER NUMBER

2861

DATE MAILED: 12/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,233

Applicant(s)

SATO, AKITO

Examiner

Lamson D Nguyen

Art Unit

2861

MW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 24-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 17-20 is/are rejected.
- 7) ☐ Claim(s) 5-16 and 21-23 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Torgerson et al. (6,267,468) in view of Suzuki et al. (6,254,218).

Torgerson et al. teach a printing apparatus comprising :

- a print head having a plurality of nozzle arrays, each of the nozzle arrays having a plurality of nozzles arranged along a sub-scanning direction for discharging a same ink (figure 1 teaches a plurality of nozzle arrays 61-64, each array discharging a same ink)
- wherein at least one pair of nozzle arrays for discharging different inks are positioned such that nozzles of the nozzle array pair are arranged in a staggered manner (figure 1 teaches pairs of nozzle arrays 63 and 64 of different inks positioned such that the nozzles are staggered, column 4, lines 26-37 teach arrays 62 and 63 are of same colors and arrays 61 and 64 are of different colors)

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- the staggered nozzle array pair is connected to a pair of ink passages for supplying to the nozzle array pair (figure 1 teaches ink passage 72 is connected to array 63 and ink passage 73 is connected to array 64)
- wherein the pair of ink passages have passage portions proximate to respective nozzles that protrude toward an opposite in passage (figure 3 teaches ink passage 72 of array 63 having ink passages proximate nozzles 21 or ink drop generators 40 that protrude to ink passage 73 of array 64)
- wherein at least half of the plurality of nozzle arrays are configured to make a nozzle array pair arranged in a staggered manner (figure 1 teaches arrays 61 and 62 being a staggered pair and same is applicable to arrays 63 and 64)

However, Torgerson et al. do not teach the following:

- no nozzles of the nozzle array pair are disposed at a same sub-scanning position

Meanwhile, Suzuki et al. teach a pair of nozzle arrays, as is well-known in the art, where no nozzles of the nozzle pair are disposed at a same sub-scanning position (figures 1 and 3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Torgerson et al to incorporate the teaching of nozzles in a nozzle array pair not disposed at a same sub-scanning position taught by Suzuki for the purpose of increasing printing resolution.

Allowable Subject Matter

3. Claims 5-16 and 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is an examiner's statement of reasons for allowance:

* the primary reason for the allowance of claims 5-7 and 21-23 is the inclusion of the limitation of a pair of light ink nozzle arrays among a plurality of light ink nozzle arrays to have a same positional relationship at least in the sub-scanning direction as that of the staggered nozzle array pair. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

* the primary reason for the allowance of claims 8-12 is the inclusion of the limitation of a controller capable of performing interlace where only a plurality of main scan lines separated one another are recorded by each nozzle array in a single main scan pass, and where recording of successive main scan lines is achieved by a plurality of main scan passes that include at least one sub-scan feed therebetween and in the interlace recording, referring to the print data memory prior to a main scan pass, for printing data of a plurality of main scan lines that correspond to an overall width in the sub-scanning direction of the staggered nozzle array pair, and performing the main scan pass according to the referenced printing data. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

5. Applicant's arguments with respect to claims 1-4, 17-20 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamson D Nguyen whose telephone number is 703-306-4546. The examiner can normally be reached on 8-5.


LAMSON NGUYEN
MARY EXAMINER
12/11/03